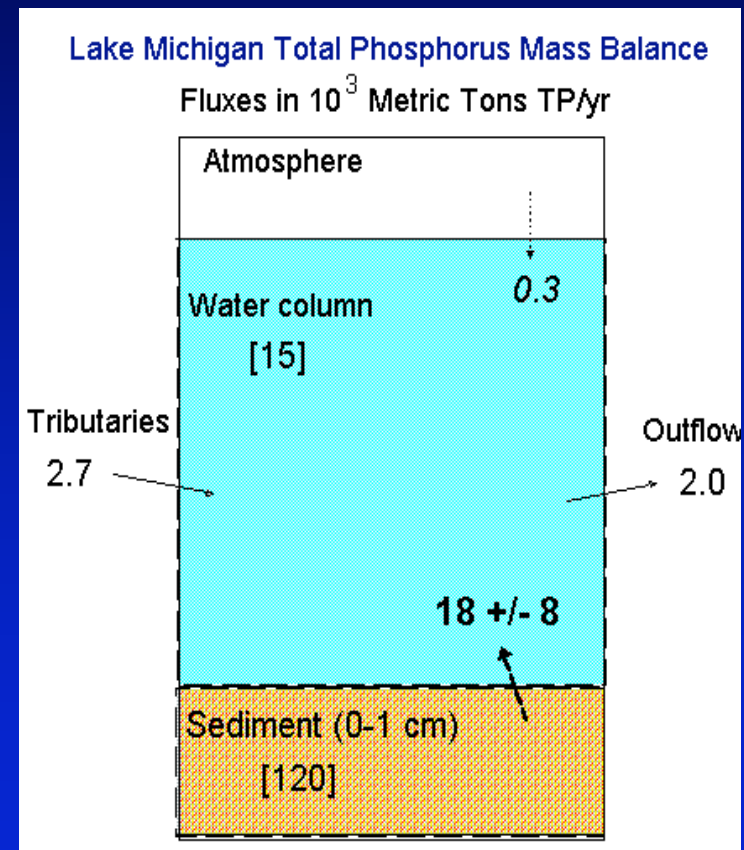


Episodic Events - Great Lakes Experiment (EEGLE) Program description

- Large inventories of chemicals (eg.,P, PCB) are stored in resuspendible sediments for over 25 years.
- EEGLE is testing how important storms are in re-exposing the lake to such chemicals
- Current best estimate for Phosphorus is 18,000 MT/y from resuspended sediments vs 2-3,000 MT/y of new input
- PCB resuspension is estimated at 1200 MT/y compared to 400 MT/y new input



Resuspension Events are common to all of the lakes

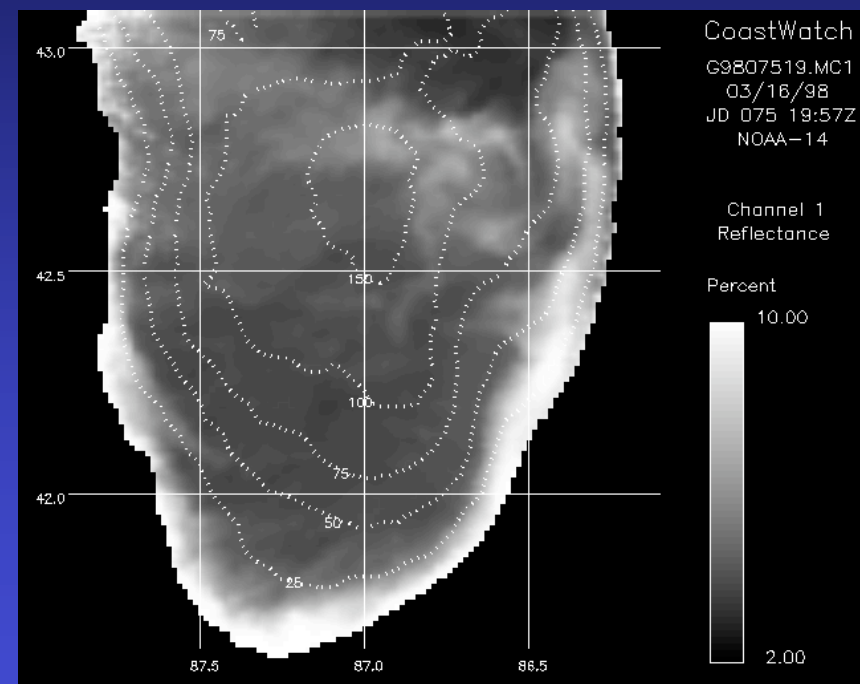
Storms during the unstratified period remobilize constituents from the massive inventory in lake sediments



Episodic Events – Great Lakes Experiment EEGLE

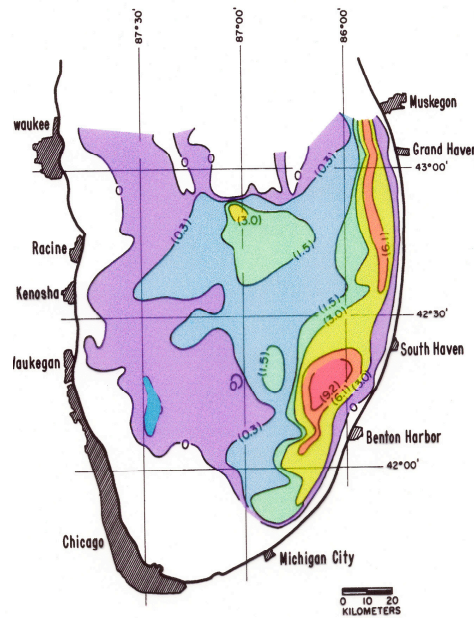
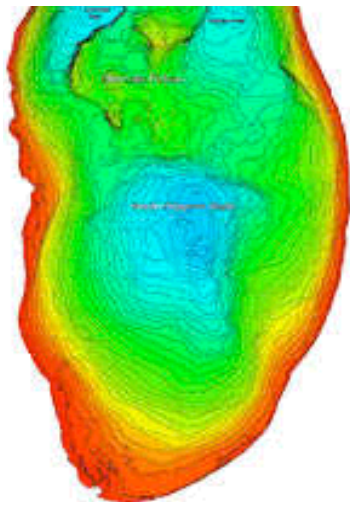
What prompted the effort ?

- **One recommendation from a 1974 GLERL Research Workshop**
- **Over 20 years of effort and discussions among colleagues about sediment-water coupling.**
- **Questions about processes that could help interpret LMMB and earlier sediment and contaminant transport results.**

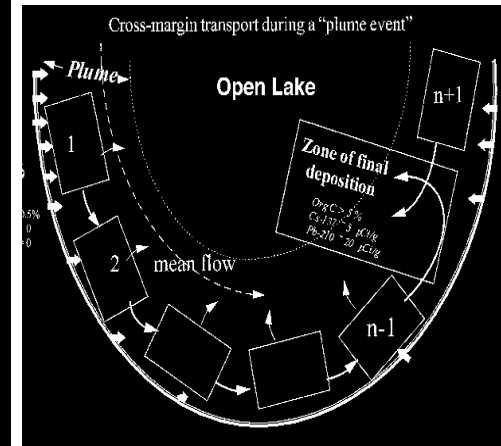
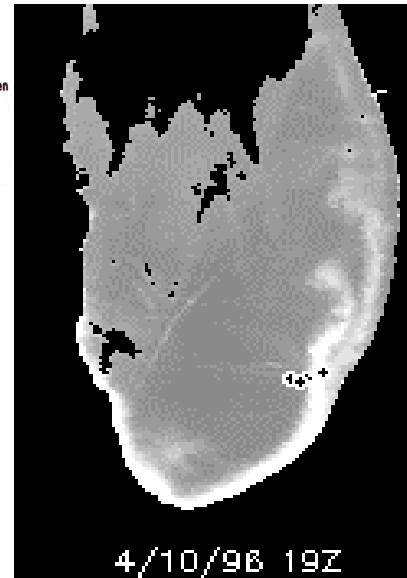


Goal is to assess the impact of episodic events on the transport & transformations of biogeochemically important materials and on lake ecology

EEGLE's main concepts can be easily communicated



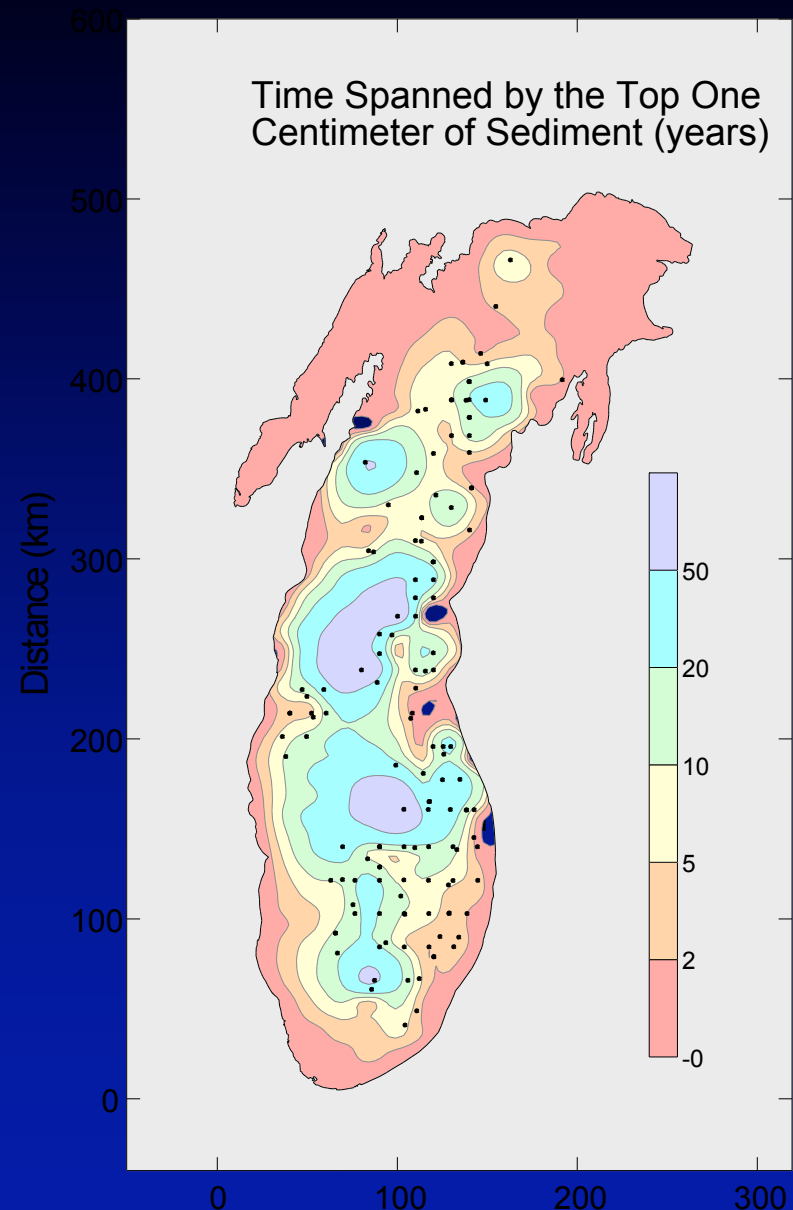
Thickness of the Waukegan (~3500 years) formation. (IL Geological Survey, 1972)



Conceptual model of resuspension and transport

Beneath the surface, there is a rich complexity unfolding after many years of research and tools are emerging

- Post-depositional remobilization and long-term removal
- High-resolution hydrodynamic models and sediment-water exchange
- Coupling of ecological models with physics
- Observational tools that measure near-continuous fields of constituents



Data from Robbins, Edgington, et al.

EEGLE – What prompted the effort ?

**Time was right and tools (observational and modeling)
were becoming available**

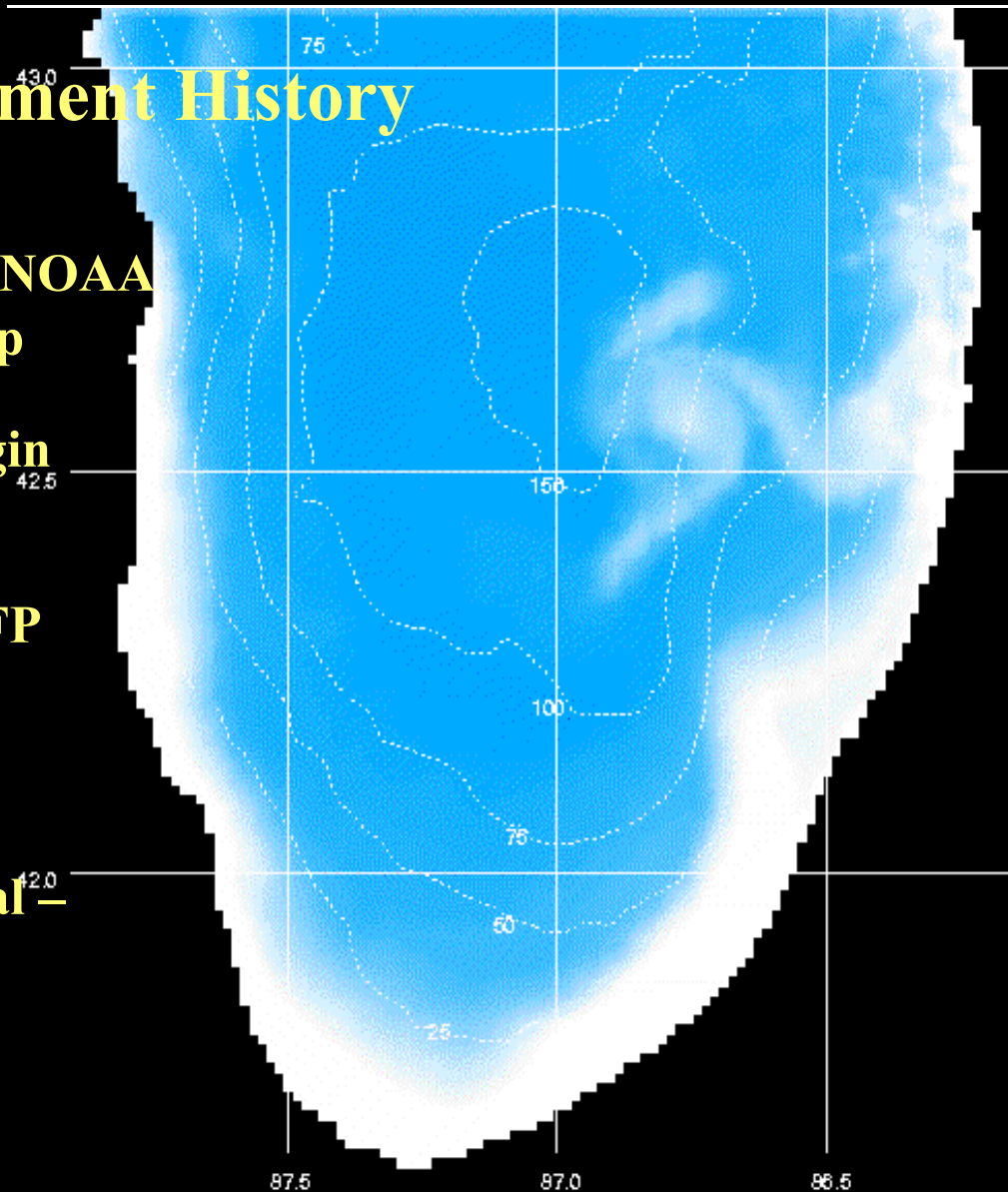
**Recent evidence suggested that
episodic events (e.g., storms, runoff-
events, upwelling, lake ice cover, and
thermal bar formation) have major
and long-term impacts on ecosystems.**

**Incorporating episodic events into
ecosystem models would help
advance prediction of and
management response to
anthropogenic and natural
perturbations to ecosystem structure
and function.**

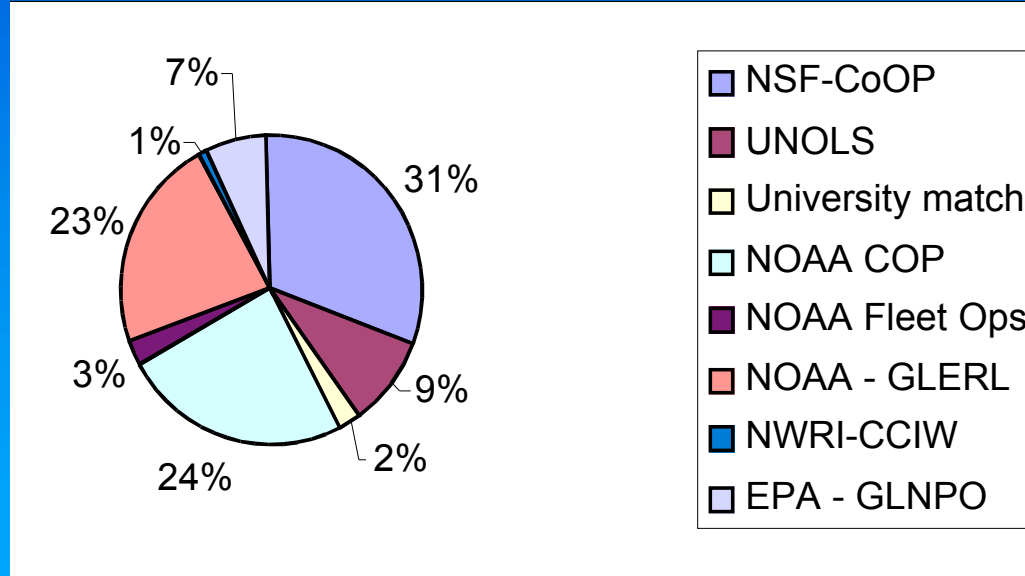


EEGLE Program Development History

- Nov 1992 – Joint GLERL-CILER-NOAA COP Great Lakes Issues Workshop
- Oct 1994 – NSF CoOP Cross Margin Transport Workshop
- July 1996 – Joint NSF – NOAA RFP
- Fall 1996 – no successful proposals
- Winter 1996-97 Successful proposal – funding initiated August 1997
- Field work : 3 years
- Synthesis (funded) : 2-3 years



EEGLE total budget FY 98 – FY 02 \$17M



- NOAA 50%
- NSF 40%
- EPA 7%
- Other 3%

Episodic Events – Great Lakes Experiment EEGLE

How was it coordinated ?

An integrated proposal – serious peer review

Annual all-hands progress review and planning meetings

Informal, self-organized specialty meetings (funds available)

Special sessions at national/international meetings – open to others as well as EEGLE participants

One or more individuals who could represent the entire program at national/international committees and public presentations.

Minimal management structure and formal reporting

Scientific Coordination and Communications

EEGLE All-hands Meetings

2001 MTU – Houghton, MI

2000 Argonne Nat'l Lab

2000 Homestead – MI

1999 U MN – Minneapolis -

NSF Review Team

1998 U MI – Ann Arbor

1998 U WI - Milwaukee

EEGLE Special Sessions

2003 IAGLR – Chicago

2002 Ocean Sciences Meeting – Honolulu

2001 SIL – Melbourne

2000 Ocean Sciences – San Antonio

1999 IAGLR – Cleveland

1999 ASLO – Sante Fe

Scientific coordination - continued

Data and information policy

Data was formally archived at the end of the program

Data were only available to participants until 2003

Web based and easy user interfaces

Modeling and process work were interactive – this was not a program to build models, rather to use them in planning and synthesis – this also resulted in model improvements

Scientific coordination - continued

Data and information policy

All abstracts, presentations, posters, news releases, manuscripts and reports were put on the web ASAP

Draft manuscripts were circulated via the web

Speedy publications of results were encouraged

A Special Issue was requested by NSF rather late in the program – not too successful.

So, how does this contribute to the structure and management of a future program ?

Management-driven Program

Agency/legislation-driven goal

Weakly peer reviewed

Complex management structure

Often IAGLR only

Complicated QA/QC protocols

Identifiable Products

Curiosity-driven Program

Hypothesis focused proposal

Strong (ongoing) peer review

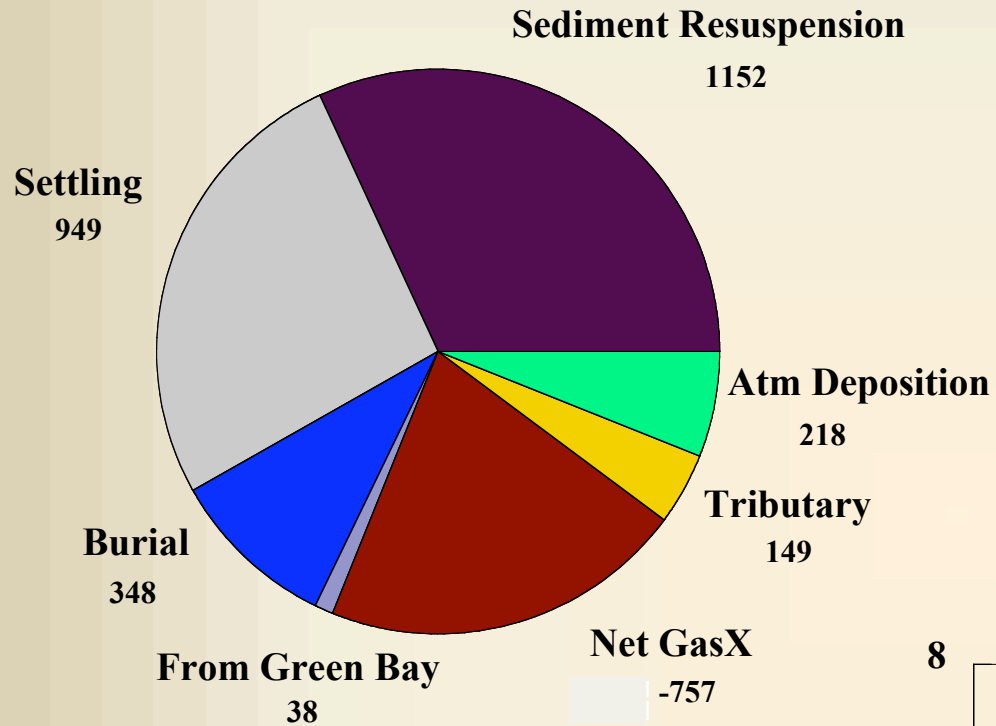
Mostly self-organization

Open viewing at pre-eminant scientific meetings

Data QA/QC relies on PI and Peer-reviewed publication

Information

PCB Processes (kg/y)

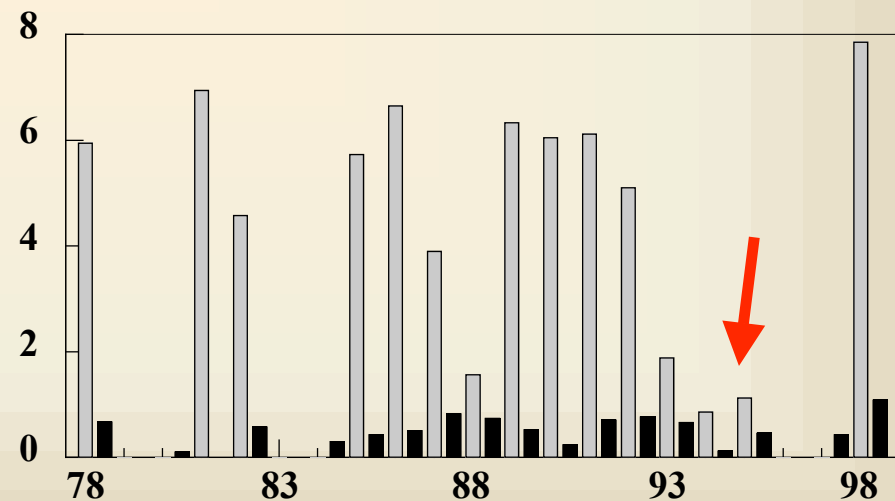


LMMB PCB Inventory (Kg)

Sediments (0-3cm) = 7071

Water Column = 690

Lk MI 100m Trap Site



Several Field Years are
CRITICAL – funded
time for **SYNTHESIS** is
CRITICAL

Keys to building a new, interdisciplinary research program

- **Identify clear objectives**
- **Program needs to be openly competitive to researchers inside and outside the Great Lakes community**
- **Build an integrated program from the beginning – lots of front-end coordination. IFYGL & EEGLE : 5+ years**
- **Incorporate serious peer review – in the proposal process and ongoing. An untapped resource may be the community of retired scientists**
- **Build in multiple field years as well as time for synthesis**



Coastal Ocean
Program

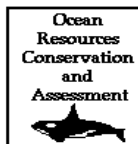


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